

THE ZOOLOGIST

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THE PRESERVATION OF AFRICAN BIG GAME.

BY CAPT. A. H. GIBBONS.

[A Committee of English sportsmen and naturalists having been formed for the purpose of devising some scheme for the protection of South African mammals, chiefly Giraffe, Zebra, Eland, Gnu, Koodoo, and other Antelopes, several of which (owing to indiscriminate slaughter) are already on the verge of extinction, the following statement has been drawn up by Capt. A. H. Gibbons for the consideration of the British South African Chartered Company.—ED.]

It is a notorious fact that many species of South African game, notably such as have not receded northwards before the advance of colonisation, are becoming so scarce, that some of the rarer species will shortly follow in the wake of the now extinct Quagga, unless steps are taken to preserve them before it is too late. To meet this end it is proposed:—

(1). That a Society be formed which shall have for its object the preservation of small herds of each of the thirty-five or forty distinct species having their habitat within measurable distance of the district selected for the enclosure proposed below.

(2). That for this purpose a suitable tract of country—of say 100,000 acres—be enclosed with a wire-fencing, strengthened by a strong live fence of thorn on the outside. It is hoped that the British South African Chartered Company, in consideration of the objects of the Society, may allow such an enclosure to be made in the district near Fort Salisbury which has already been reserved for game by the Company. In this district the Eland,



Koodoo, Roan, and Sable Antelopes, Hartebeest, Zebra, Blue Wildebeest, Reedbuck, and other species still exist, herds of which could with little difficulty be driven into the enclosure. To these might be added the young of other species not indigenous to the district. To avoid overcrowding the herds of each species would necessarily be limited; the species marked * in the appended list (as being more immediately threatened with extinction) to twenty head, and others to twelve, or thereabouts.

Eland	Red Rhebuck
Koodoo	Vaal Rhebuck
Roan Antelope	*Bontebuck
Sable Antelope	*Blesbuck
Gemsbuck	Duiker
Waterbuck	Steinbuck
Blue Wildebeest	Oribi
Tsessebe	Grysbuck
Hartebeest, <i>B. caama</i>	Klipspringer
„ <i>B. lichtensteini</i>	Bluebuck
Pallah	Natal Redbuck
Bushbuck, <i>T. sylvaticus</i>	*White-tailed Gnu
„ <i>T. scriptus</i>	Damara Antelope
*Speke's Antelope	Giraffe
*Inyala	Ostrich
*Sitatunga	Warthog
Reedbuck	Bushpig
Lechwe	Zebra, <i>E. burchelli</i>
*Pookoo	„ <i>E. chapmani</i>
Springbuck	* „ <i>E. montanus</i>

(3). That, as a means of profit, specimens be exported, at market prices, for the use of existing Zoological Societies. For this end calves would be taken from their dams as young as possible, reared on cow's milk, and shipped at Beira, which will, no doubt, shortly be connected with Fort Salisbury by rail. A farm would be necessary *outside the enclosure* to provide milch-cows for rearing purposes. There seems to be no reason why this farm should not combine stock-rearing on a sufficiently large scale to cover all current expenses, especially since no further increase in the staff would be necessary. An experienced South African farmer, capable of superintending and protecting the interests of the Society, would be appointed to manage the

farm, and preserve the game inside the enclosure. It would be necessary also, for the first few years at least, that some responsible person should control the expenditure on the spot, give general directions to the manager, and devote himself in the calving-seasons to procuring as many species of game as possible from various districts to be turned loose in the enclosure. The estimated capital required for such undertaking would be about £5000.

[While heartily sympathising with this scheme, and recommending it to the consideration of the British South African Chartered Company, we take the opportunity of anticipating adverse criticism as to the feasibility of making and maintaining large enclosures for Big Game by showing what has been done in this direction in America. The following account, from our American contemporary 'Forest and Stream,' of a large "Game Park" in New Hampshire, comprising some 28,000 acres, will be read with interest by naturalists as well as sportsmen.—Ed.]

THE CORBIN GAME PARK IN NEW HAMPSHIRE, U.S.A.

By JOHN R. SPEARS.*

SOME years ago a friend presented to Austin Corbin, the well-known railroad man, a few young Deer. Mr. Corbin accepted them, and having a great country seat that included many acres of woods as well as cleared fields out on Long Island, he caused a part of the woods to be suitably fenced, and turned the Deer into the inclosure. Mr. Corbin, at that time, was neither a sportsman nor a naturalist, in the sense in which these terms are generally understood. He had no especial interest in wild animals of any kind. Nevertheless, as a lad he had lived on a farm in New Hampshire, among the foothills of the White Mountains, and had trapped Woodchucks, and shot Partridges, and chased Foxes, and the good healthy delights of those days lingered in his memory. Small wonder then that the gentle pets his friend had given to him won their way into his affections from the moment they became his. It was a new pleasure—something he had never known before—to go and watch their graceful

* From 'Forest and Stream.'

motions and gaze upon the beauty of their forms. Moreover, Mr. Corbin had a son, and Austin junior was as much delighted with the pets as his father.

There was ample room on the Long Island estate for more than the few Deer, and the Corbins decided that more should be had. This led to the examination of sundry books on the subject of Deer culture, if one may use the term, books like Judge Caton's, for instance, while 'Forest and Stream' and other periodicals were necessarily read regularly. Certainly the love of nature grows with what it feeds upon, if any emotion of the heart does. If Deer could be kept, why not Elk, Moose, Antelope, and Buffalo—especially the Buffalo?

Mr. Corbin had lived in Iowa when a young man, and in the days when the herds of Buffalo on the plains of Nebraska, Kansas, and Texas numbered untold thousands. It was a great pity that such noble animals were likely to become extinct, and the Corbins determined to join in the effort to perpetuate the species. They had begun with a few Deer, and they added Elk, Antelope, and Buffalo, and then it became apparent that the Long Island estate was too small for the proper care of these animals, or at least for the care which the owners desired to give them.

It is to be particularly noticed that the Long Island estate was not suited to the treatment that the Corbins wished the animals to have. From caring for their few pets had grown the desire to rear herds of these animals under such conditions of freedom as would leave them with all their natural characteristics. A pet Deer was beautiful, but it was not the Deer of the wild woods after all. A pure bred Buffalo in a barn-yard was in fact a Buffalo, but he was too much like a Durham bull to be perfectly satisfactory. On the Long Island farm the animals could scarcely become anything more than pets.

So the thoughts of the elder Corbin went back to the days of his youth and the foothills of the White Mountains. As most of our readers know, there is plenty of land in New Hampshire that is just as wild now as it was when Hudson first looked on the ground where the Statue of Liberty now stands. There was a deal of it in Sullivan County, perhaps not the wildest in the State, but certainly plenty of unbroken forest that covered hills and valleys, and surrounded little lakes, forests of birch and beech, and maple and pine, and spruce and hemlock, and balsam—forests

beautiful and fragrant enough to give a city man the heartache when he thinks of them.

Mr. Corbin determined to buy from 20,000 to 30,000 acres of these hills and valleys, and there establish a park for his new-found four-footed friends in which they would find the conditions as nearly as possible those to which they were best suited. Mr. Corbin eventually got 22,000 acres in one tract.

The next thing was to fence it, and only those who have tried building elk-tight fences can appreciate the job. Here was a tract of over thirty-five square miles of land to inclose. They started out with a wire-net six feet high, secured to stout posts ten feet apart. Above the net they strung ten lines of barbed wire, and that made a right good fence. But when eighteen miles had been erected, they abandoned the wire-net and used barbed wire only for the rest of the way. That was cheaper and just as good. It is not uninteresting to note that the fencing cost 74,000 dollars, or £14,800.

In all, nine gates were to be placed in this fence, with a keeper's lodge at each gate, made necessary by the presence in every community of the skulking lout who will steal or destroy the property of the well-to-do, and especially such property as this fence would enclose. Mr. Corbin was sure his park would not in any way interfere with the rights of legitimate sportsmen.

Here in this tract of woodland, with only enough cleared land on it to afford meadows over which the animals would like to wander at times, were gathered twenty-five Buffalo, sixty Elk, over seventy Deer, half-a-dozen each of Caribou and Antelope, eighteen Wild Boars imported from Germany, and an unknown number of Moose—perhaps a dozen. He had four Reindeer brought from Labrador, but all died. He hoped to have also a community of Beavers, for the lakes and streams are admirably adapted for these beautiful animals.

Quite as interesting as any description of the park and its inhabitants is the story of the gathering of the specimens. It is too long to tell in full, but room remains for enough. The agent employed to gather a large part of the animals from Canada was Thomas H. Ryan, who had served Mr. Corbin in a number of capacities for the previous twelve years. In October, 1890, Ryan was commissioned to go to Canada to see what could be done about getting "any wild animals there except Bears, Panthers,

Wolves, and Foxes." At Sherbrooke he met a friendly newspaper man who said one Dan Ball, of Megantic, knew all about the Deer of that country, and so to Megantic he posted. He met Ball, and found him able and willing to get the Deer. He then went fifty miles to North Bay, 200 miles west, and from there to Mattawa, on the verge of a region where Moose abound, Deer are plentiful, and Beaver possible to obtain alive. A contract was made with a trapper for a supply of all these animals—at least twenty of each, if that number was possible.

Meantime Dan Ball had gone to work at Megantic by selecting a few friends, and looking over the woods to see where the Deer were "yarding." In December the snow became five feet deep in the woods, and Dan knew of one "yard" where at least 300 Deer were gathered together. Then he and six others went on snow-shoes, with buckskin thongs, and one gun loaded with powder only. Locating a bunch of Deer in a thicket, six of the men crept up as near as possible to the leeward without alarming them. Then the seventh came tearing down with the wind and with a wild yell, and the discharge of the gun, scattered the bunch like a flock of Quails before a cur pup. Some of the fleeing beauties plumped into the snow, that was so deep and so fluffy, that they sank out of sight at the first struggle, nor could they escape till Dan and his friends kindly lent a hand. In all a dozen were captured thus, and with legs bound with soft leather thongs, were carried to an old shanty in the woods some distance from Megantic.

In January Ryan went away to bring the Deer to the park in New Hampshire. Megantic is on the Canadian Pacific road. A box-car was sent to a siding formerly used by a lumber mill, and there carpeted with hay, straw, and a good supply of browse. The ends were then partitioned off from the space between the doors by means of poles, and within the spaces thus formed the Deer were placed, being simply lifted in. They had been kept in the meantime in the old mill unbound. With Dan Ball to look after and especially to water the Deer, the car was hauled to Newport, Vt., the location of the United States customs office, where they were passed duty free, and were sent on to Newport, N.H., by way of Concord, nearly 100 miles farther than necessary. The extra ride proved disastrous, for one Deer died *en route*, and

two after their arrival. Nine were as well and frisky as when in their native forests.

The Buffalo in this park came originally from Montana, but were purchased of a Minnesota man. The Moose, Elk, and Caribou came from Minnesota also, and were captured along the Canadian border.

Among the interesting experiences in the transportation of the animals for this park may be mentioned these: Moose have been carried 2000 miles in four days without apparent injury. The last consignment included sixteen Moose, three Deer, and one Caribou. All arrived in good condition, but eight Moose died afterwards, because, it is thought, of the change in their diet, or water, or both. On one occasion, when thirty Deer were *en route*, a collision with another train killed twenty-two of them outright, and four more died afterwards.

It is noticed that the largest Deer most easily succumb to railroad travel. None of the animals ever eat or sleep while the car is in motion. On a side track they will eat a little. There seems to be more danger of their suffering from heat in a box-car than from cold, but the worst trouble is in the jerking to and fro of the car when the train is stopping or starting. They are fed on barley, corn, bran, and hay. In the woods they are expected to live as they would naturally do, but places are established where food is left for them, so that none shall lack.

Beginning with a few pet Deer in a paddock, the Corbins now have a private zoological park, where, if at any such place in the world, the animals in it may be seen and studied under the most natural conditions. His outlay up to the completion of the park is not far from 400,000 dols.

Since the foregoing was written we have obtained the following information, chiefly in relation to the breeding of the animals in their new environment, it can hardly be called captivity when we consider that they are at liberty to wander over 28,000 acres of woodland, hill, and valley.

In respect of breeding, the park has proved a great success. All the animals have taken kindly to their new surroundings, and their numbers are being materially increased by births. Of the twenty-two Buffalo which were turned out about a year ago, eight of the cows proved in calf, and two young have been added to the

herd. The Elk, which bred to a limited extent on Mr. Corbin's Long Island estate, have found their mountainous New Hampshire home more to their liking, and have already increased 50 per cent. Next to the Elk, the most accurate count has been kept of the Moose, which, unlike their gregarious brethren, go in pairs during the rutting season. It was at first feared that these unusually retiring animals would not breed in the park, but it was subsequently ascertained that six of the cows were with calf. There are upwards of sixty Moose in the park, and they make a much wider range in travelling than the Elk (or Wapiti), which keep pretty well to one locality where there is considerable brush and small growth, and no doubt abundant feed.

The agent who was instrumental in securing for Mr. Corbin the first denizens of the park, has the head of a particularly fine Moose in his possession. The unmounted head weighed 300 lbs. and the horns, which show eleven points, have a span of about five feet. This head was bought of an Indian in Mattawa, and is said to be the last green head taken out of Ontario previous to the passing of the law forbidding the killing of Moose.

To come back to figures, the Wild Boars, imported from Germany in September, have been frequently seen. They have evidently gained by natural increase, and must be quick travellers, as three or four herds have been reported in different localities at nearly the same time by the gamekeepers. The old boars have grown considerably, and are wonderfully fleet of foot, for, unlike the domestic hog, they do not fatten. As far as can be ascertained, all the other animals, including the several species of Deer, have multiplied considerably, and their change of habitat, and the fact that the big fence occasionally checks their extended wanderings, does not seem to cast any blight on the even tenor of their lives.

Included in the park are two ponds of twenty and thirty acres respectively, and probably 100 miles of streams. The ponds were cleaned out in 1890, and many eels and other fish destroyed, and now the ponds and streams are all stocked with trout.

While in London Mr. Corbin purchased 20,000 hawthorn trees. Four thousand of these were planted in the spring. They are for the purpose of forming a hedge strong enough to prevent the Buffalo and other large animals from getting out. This tree, of which there are two varieties, the white and black, is used

very extensively for inclosing the game-parks of England and France. It grows from eight to ten feet in height, and is the toughest and strongest tree that can be found, making, with its interlocking and elastic branches, a hedge that would resist a battering ram. The trees are being planted inside the big fence of barbed and woven wire, and will eventually take its place when the latter becomes weakened through rust and exposure.

There will be no hunting in the park at present, though in future years, when the animals have multiplied beyond the resources of their domain, it is possible that Mr. Corbin may adopt this means of thinning them out.

The development of this enterprise is being watched with decided interest by sportsmen and naturalists. Success in New Hampshire, when it shall have been demonstrated beyond the peradventure of a doubt, will prompt similar enterprises in other parts of the country. While much interest is felt in the introduction of foreign species, Americans are naturally most concerned with the successful conservation of bands of American big game, the Elk, and the Antelope, and the Buffalo. May these wild creatures yet feed on a thousand hills of the New England and other Eastern States, and on the game preserves of the west!

Besides the New Hampshire park, Mr. Corbin has two other game preserves. On his Long Island estate he now has twenty-one Elk and about eighteen Deer, and at Manhattan Beach he has twenty-five Elk. At the latter place he has ten acres inclosed with an open wire fence. There will soon be dug here a large pond, which will be filled with salt water from the tides of Sheepshead Bay. In this pond are to be a dozen Seals and ten Sea-lions; the former from St. John's, Newfoundland, and the latter from the Pacific coast.

NOTES ON THE ORNITHOLOGY OF NORTHAMPTONSHIRE
AND NEIGHBOURHOOD FOR 1893.

BY THE RT. HON. LORD LILFORD, F.L.S., F.Z.S.

I CONTINUE my notes from the end of 1892 (Zool. 1893, p. 97).

JANUARY.

1st. I received a letter from the Rev. Henry H. Slater, of Irchester Vicarage, in which he informed me that he had observed four Buzzards together (apparently on passage), near that place, on Sept. 26th ult. I noticed my old Raven rolling with evident enjoyment, and, if I may use the term, "dusting" himself, in the snow in front of the house.

2nd. R. C. reported a vast flight of Wood Pigeons as passing up our valley near Lilford in a westerly direction this morning; he did not see the head of the column, but told me that he watched the passage "in a thick stream" for at least ten minutes. Snow-showers and 16 degrees of frost.

8th. Thaw set in, after a maximum of 27 deg. of frost on 5th inst. Some three hundred Mallard seen on a ploughed field a few days ago, near Oundle Wood, reported to me by Mr. McKee, of Oundle.

12th. A solitary male Pochard shot near Aldwinckle.

14th. Our engine-man tells me that about the beginning of this month he several times noticed a Dipper near the engine-house and Lilford Locks, and that a good many Siskins are haunting the alders along the river-side. Slight fall of snow.

15th. Two large Grebes seen on the river near our boat-house.

23rd. Dull, and very mild. Wood Pigeons in full "coo" near the house.

26th. I heard from Mr. W. J. Horn, of Kingsthorpe, that a Great Grey Shrike was seen and shot at near Weston Favell, on Nov. 1st ult. R. C. reported that on 23rd inst. two Swans, that he felt certain were Bewick's, visited our park-pond.

27th. Nine geese passed up the valley near Lilford in a S.W. direction. A big lot of "fowl" reported on the river near Aldwinckle. A large "parliament" of Rooks upon Pilton meadow just before sunset. These assemblages of Rooks are, in my

experience, almost invariably followed by a gale of wind, but this instance proved to be an exception to the rule.

29th. Thirteen geese reported to me as going southerly over Thorpe Waterville.

30th. The decoy-man reported having seen nine swans on 25th, and eight yesterday; from his account, I am convinced that the greater number of these birds, if not all of them, were Bewick's Swans. Mr. F. A. Irby, who was staying with us at Lilford, reported a flock of swans near Aldwinckle to-day.

FEBRUARY.

1st. About a dozen geese seen near Thorpe Waterville.

2nd. My son, who left Lilford for London this morning, telegraphed to me from Northampton: "Swans on flood between Ringstead and Higham Ferrers." I heard from the Rev. J. T. Watson, of Woodford, as follows:—"About a dozen Swans came here rather more than a fortnight ago, and seem to have settled down." The decoy-man reported twelve swans near the decoy on 31st ult.

5th. In reply to an enquiry about the Swans at Woodford, I to-day received a letter from Mr. Watson above mentioned, to the following effect:—"I have just been looking at the Swans through the best telescope that I can get, but I cannot be certain about the colour of their bills. I feel, however, pretty certain that they are light yellow and black. There are two grey birds, all the rest are white. When they fly, I am told (though I have not heard them myself) that they utter a short, sharp cry, 'like a baby crying.'"

8th. The decoy-man told me that when he last saw the Swans, on 31st ult. (*cf. supra*), they flew low over the decoy and settled on the river near a spot that we call "Snipe-corner," about a long mile below Thrapston by water. They made what he describes as "a hidjus nize," something like a flock of tame geese, and eventually waddled out of the river on to the flooded meadow, and began to graze; they allowed him to get within about 200 yards, when they took wing, and flew up the valley of the river. Two of the twelve had a good deal of grey about them. I heard from Mr. H. H. Slater, above mentioned, that he saw four Swans, of which two were grey, from the train near Ringstead yesterday. Wood Pigeons are carrying about building materials.

11th. I received a somewhat vague, but perfectly authentic, report of Swans, Geese, Gulls, and many Ducks on the flooded meadows below Oundle.

12th. Mr. W. J. Horn, in a letter received this morning, informed me that he visited Ravensthorpe Reservoir on 9th inst., and found between 400 and 500 wildfowl—Mallard, Teal, and Pochards—thereon; he also noticed two grey-mantled Gulls, and two birds which, from his description, must, I think, have been Divers, in all probability Red-throated. Capt. J. A. M. Vipan, of Stibbington, wrote to me, under this date, that on Jan. 24th ult. he observed fourteen Swans on the floods near Water Newton; he went down after them with punt and big gun, and found nineteen in two "lots" of eleven and eight respectively; the eleven would not let him get within 200 yards, but he could see with the glasses that they were "all certainly Bewick's Swans." He got a long shot at the other lot (amongst which he could detect some Mute Swans), and eventually secured two Whoopers and one Mute; one of the Whoopers weighed nearly 20 lbs. He adds that he was informed that there were about twenty Swans on the same spot yesterday morning (11th inst.).

13th. Four Swans seen near Ditchford Station L.N.W.R.

15th. Three Swans, "making a whooping noise," on wing near Achurch; reported by one of our gamekeepers.

16th. I heard from Capt. Vipan that he had seen nineteen Swans swimming on the floods above Wansford yesterday, but they had been so disturbed that they would not allow him to get near enough to make certain of their species; he adds that amongst the eleven Bewick's Swans seen by him on 24th ult. (*cf. supra*) there was one grey bird.

17th. The Song Thrushes are re-appearing in force after a nearly entire absence of about three months. Considerable passage of Peewits, Mallard, and a few Golden Plovers, to the north-east, observed near Lilford.

19th. Three "wild" Swans reported by our coachman near Aldwinckle.

23rd. Five Swans seen on wing near Aldwinckle.

28th. Mr. G. M. Edmonds, of Oundle, writes of having seen twelve Swans flying over his gravel-pit a few days ago; and our coachman reported that he saw six Swans this morning near Thorpe Waterville. One Goldeneye upon the decoy-pool.

MARCH.

1st. About half-a-dozen Common Gulls passed over Lilford to the south-west.—R. C.

3rd. Several Herring Gulls seen passing southward.—R. C.

7th. Mr. W. J. Horn, of Kingsthorpe, in a letter received to-day, tells me of having seen many Bramblings in a spinney near that place on 19th ult., also of return of Common Wagtail on 23rd ult., and many male Reed Buntings on 6th inst.; he also remarks the total absence of Grey Crows from the neighbourhood of Northampton.

9th. R. C., having heard of two Swans near Barnwell Mill, went down to have a look at them, and assures me that he could perfectly identify them as Whoopers.

11th. Three pairs of Barn Owls found in hollow elms near Lilford, but no eggs as yet laid by these birds.

20th. The first nest of Song Thrush reported to me, containing three eggs.

27th. A pair of Wood Pigeons in our aviary have two eggs in their nest in a box. The Bitterns in our aviary have been "booming" at night for several days past.

29th. First eggs of Peewit of the season brought in.

30th. R. C. made an exploring visit to the many hollow trees in the deer-park, and reports that almost every suitable cavity is tenanted by a pair of Stock Doves. He found a nest of Tawny Owl with three eggs, and two Barn Owls in another tree without eggs.

APRIL.

2nd. A very large flock of travelling Wood Pigeons seen near Wigsthorpe.

4th. Mr. Walter Stopford told me that on going to look at a nest of Stock Dove near Aldwinckle, in an old hollow willow-tree, he found one of the old birds, freshly killed and partly eaten, at the foot of the tree; and whilst he was climbing up to the cavity that contained the nest an old fox jumped from it. My nephews reported having seen a "large, slow-flying brown hawk" in the park, hotly pursued by Rooks; in all probability a Common Buzzard.

7th. Two nests of Barn Owl found in the park, containing respectively four and one eggs.

11th. A nest of Little Grebe found near Achurch, containing three eggs. I merely record this because, although this bird may be considered as abundant here during the winter months, this is the first occupied nest hitherto found in this neighbourhood, to my knowledge. A pair of Kingfishers nesting near Lilford. I much regret to add that some thief subsequently dug out and stole the eggs of this pair. Whimbrel and Redshank seen near our decoy.

14th. Lieut.-Col. C. I. Strong visited the heronry at Milton to-day, and informed me that he and his daughters counted about 130 nests, not, however, all occupied. Many young Herons could fly well, but some were still in the nests.

21st. First Partridge's eggs of season found.

28th. Many Fieldfares have been reported to me during the last ten days, and a very fine specimen was killed to-day.

29th. A female Starling in the aviary has paired with what (for want of a better name) I must call a Sardinian Starling, *Sturnus unicolor*. These birds have a nest and several eggs in a nesting-box.

30th. Well-feathered young Long-tailed Tits in a nest near the aviary.

MAY.

2nd. A female White-fronted Goose, paired with Bean gander, has four eggs at aviary-pond. Pochard sits upon six eggs at park-pond. An occupied nest of Barred Woodpecker was discovered in an old hawthorn-bush near Lilford. I am glad to add that a brood of five or six were safely reared and took wing from this nest.

4th. I received a letter from Mr. W. J. Horn, in which he assures me that he positively identified a Grey-backed Wagtail, *Motacilla alba*, at Kingsthorpe, on 30th ult. A very fine adult Gannet was brought to me by one Tilley, who informed me that it was caught by his dog on the roadside near Stanion on March 4th ult.; he stated that it was alive and in fair condition, and that he would not have killed it, "only I thought it was a Hershaw!" He sent the bird to be stuffed at Kettering by Mr. H. Field, who had informed me of the occurrence in March last.

18th. A nest of Little Owl in hollow ash-tree in the park contained several young.

27th. A Lesser Black-backed Gull, in adult plumage, hovered for some time over my pinioned Gulls in the kitchen-garden.

JUNE.

8th. Several broods of Partridges hatched out on 29th ult. reported to me to-day.

10th. A brood of Pied Woodpeckers have left the breeding hole in Lilford Lynches.

11th. House Martins, hitherto remarkable for their scarcity this year, swarming about the house at Lilford.

12th. A Sky Lark is sitting upon a nest full of eggs on a strip of grass of not more than four feet in width, between the high-road and foot-path near Achurch.

23rd. Mr. George Fitzwilliam sent me a curiously-coloured variety of Carrion, or possibly Grey Crow, stuffed, for inspection, with the information that it had haunted the park at Milton, Peterborough, for two years, and was shot in May last on account of depredations amongst poultry. This specimen has a dark brown head; the rest of the plumage is of a light buff or cream-colour, approaching to white on lower breast and belly.

24th. A Green Sandpiper was seen at Lilford Locks to-day.

29th. The decoy-man to-day reported to me that he had heard the call of a Quail near Tichmarsh on 3rd inst., and more than once since that day, in the meadows near the decoy.

Before bringing my remarks for June to a close, I must mention that in some very interesting notes sent to me by the Rev. H. H. Slater, who is now Rector of Thornhaugh, near Wansford, he alludes to the frequency and the nesting of the Grasshopper Warbler in that neighbourhood, in April and May of this year, and tells me that he heard and clearly identified a Wood Lark singing in a clearing planted with young larches, in Bedford Purlieus, on April 24th. In my experience, the Wood Lark is a rare bird in this county at any time of year, and this is the first occurrence that has come to my knowledge on undoubted authority for more than twenty-five years. The Grasshopper Warbler is (though not common in the immediate neighbourhood of Lilford) certainly much more abundant in our county than was formerly the case, as my next note goes to prove.

JULY.

7th. Mr. W. J. Horn, in a letter from Kingsthorpe under this date, informed me of the finding of several nests of Grasshopper Warbler, with eggs, not very far from Northampton.

15th. Several well-grown young Partridges picked up dead and dying, with large indurated lumps of clay attached to their feet.

20th. A very noticeable decrease in the numbers of Swallows and House Martins about Lilford.

22nd. Our gamekeepers report having constantly noticed a Hobby, during the last few days, about the park and neighbouring plantations. Curlews and Whimbrels heard at night, passing over one of our woods near Lowick, by a person well acquainted with the call of both species.

26th. Mr. W. J. Horn, writing under this date, informed me that Mr. W. Tomalin reported Ringed Plovers, Green Sandpipers, and young Common Sandpipers at Ravensthorpe Reservoir on 19th inst.

30th. I never remember to have seen Spotted Flycatchers in such abundance about Lilford as I did on this day.

AUGUST.

5th. I was delighted to see several Kingfishers about the river near Lilford. These birds, formerly abundant here, have been comparatively scarce since the winter of 1890.

10th. We noticed two large Gulls, that I have no hesitation in calling Black-backed, going over the pleasure-grounds at Lilford in an easterly course. One of the gamekeepers brought down two Brown-headed Gulls at one shot near Tichmarsh; one of them, only touched in the pinion-joint, is still alive in the aviary (April 19th, 1894). Very severe and prolonged thunder-storm in the early morning hours.

17th. Mr. Hill, of Wadenhoe Mill, informed me that he had recently been savagely attacked by a Little Owl in Wadenhoe churchyard. It is not a little remarkable that he should last year (July, 1892) also have been subjected to a similar totally unprovoked assault (*cf.* Zool. 1893, p. 93).

18th. Rooks unusually clamorous throughout the day. Temperature at sunset, 92° Fahr.

20th. Almost total disappearance of Swallows from about the neighbourhood of Lilford. Tawny Owls have been hooting

throughout the day for more than a fortnight past. A Kestrel lifted something from the lawn within twenty yards of me as I sat in the shade, but in full view of the bird.

21st. Under this date, Mr. W. J. Horn informed me that a Quail's nest containing nine eggs was "mown out" on a field of barley near Boughton, Northampton, on August 1st.

26th. The decoy-man reports the first Snipe of the season at the decoy-pool.

27th. A considerable flight of Wild Geese passed over Barnwell and Aldwinckle between 12 and 1 p.m. My informants were respectively Mr. H. Wickham and one of our gamekeepers, and from their reports of the cries and the size of these geese, I have not a doubt that they were Grey-lags. Several Curlews seen by the gamekeeper just referred to.

30th. A large slow-flying bird of prey reported by the falconer as passing near the house at Lilford, hotly pursued by Rooks. From his description, and one given by Lady Lilford, who saw this bird on the next day, it must, I think, have been a Honey Buzzard. The decoy-man to-day reported having seen the first Teal of the season on the decoy-pool yesterday.

SEPTEMBER.

1st. Mr. R. Stockburn, of Kettering, most obligingly despatched a young Quail, shot by him near Loddington to-day, to me.

2nd. I recognised distinctly the cry of a Tern high in air above my boat, but could not see the bird. The falconer positively affirms that he saw four Redwings to-day on Pilton. The hawberries are in great profusion, and as "forward" as they generally are in the first fortnight of October, affording very welcome sustenance to all Thrushes. My son told me of seeing an "old blue Falcon" stoop at a Partridge near Tichmarsh to-day.

6th. Appearance of Swallows in great numbers (*cf.* August 20th, *supra*).

10th. First report of Grey Wagtail for the season, at Lilford Locks.

12th. Col. C. I. Strong sent me a young Ruff, in the flesh, shot by him in Whittlesea Wash a day or two ago.

13th. Swallows and House Martins in swarms about the house at Lilford.

16th. Having of late heard many reports of the scarcity of

Goldfinches, from various parts of the county, I was glad to see several "charms" of these beautiful little birds about a fine crop of thistles on what ought to be a pasture field on one of our farms to-day.

20th. First report of Merlin for the season.

24th. House Martins, which were swarming about the house yesterday, have nearly all departed this morning, leaving many Swallows with us.

25th. Mr. F. W. Holland, of Eydon Hall, most kindly presented to me a very fine male Red Grouse, stuffed, with the information that it was shot near Warkworth, in this county, in November, 1892, by a person with whom he is acquainted. I am indebted to Mr. O. V. Aplin for the first intimation of this occurrence—unique, as I believe, in Northamptonshire. First Wigeon of the season reported on our park-ponds.

OCTOBER.

3rd. First report of Grey Crow for the season.

6th. I received a very young Dotterel, in the flesh, from the Rev. W. Hopkinson, with the information that it was one of two killed two days ago on Castor Field by a Mr. Hunt. These two birds rose from a "stale tilth," and were the only two of the species seen. The other was sent to Burghley House, where it was declared to be a young Golden Plover, and as I subsequently learned, eaten with satisfaction as a "Short-billed Woodcock"! The specimen sent to me was unfortunately too far "gone" for preservation. Mr. W. Tomalin, in a letter received to-day, informed me that two Quails were shot at, and missed, near Hackleton on 4th inst.

8th. A large flock of travelling Wood Pigeons about the beeches at Lilford.

10th. I heard notes of Brambling for the first time this season at Lilford. Vast flocks of Peewits passing to the westward.

17th. First report of Woodcock for the season, at Clapton.

19th. I noticed a large number of Redpolls about our pleasure-grounds.

21st. A large flock of Geese passed over Wadenhoe to the south-west. A lady who was staying with us assured me that a pair of Rooks have a nest, and in all probability eggs therein, near Thorpe Station. First report of Fieldfare for the season.

27th. I noticed Mistletoe and Song Thrushes in very unusual numbers feeding upon the berries of the Irish yew in the terrace-garden at Lilford.

30th. An immature female Great Crested Grebe shot near our decoy.

NOVEMBER.

2nd. The falconer reported a great passage of Sky Larks during the last few days. Two Swallows seen at Weekley by Mr. G. Charlton.

9th. Mr. E. C. Burton, of the Lodge, Daventry, was kind enough to send me a fine pair of Eared Grebes, stuffed, with the information that they were shot upon Daventry Reservoir in 1869. This is the only occurrence of this species in our county that has come to my knowledge. In the case containing these Grebes was a fine Sheldrake, also killed on Daventry Reservoir.

10th. First Jack Snipe of season shot near Tichmarsh. Three immature Goldeneyes shot in the same neighbourhood.

11th. Ten Golden Plovers seen passing over Aldwinckle.

16th. Mr. E. C. Burton sent over for my inspection three cases containing the following species, all killed at Daventry Reservoir:—Ringed Plover, Grey Phalarope, Green Sandpiper, Common Tern, Black Tern, Great Black-backed Gull, a pair of Goosanders, and a Cormorant. The only dates given refer to the Gull and the Cormorant, of which the former was killed on May 13th, 1839, and the latter on March 31st, 1891. Mr. Burton was good enough to present me with these two birds. Mr. B. Wentworth Vernon wrote informing me of the existence of a small heronry, of which I had not previously heard, at his place, Stoke Bruerne Park, near Towcester. Mr. Wentworth Vernon, in a subsequent letter, informed me that about two years ago two large Eagles were soaring over his park and the neighbourhood for several hours.

24th. Whilst we were sitting at luncheon, about 2 p.m., I heard my two tame Ravens making a great uproar close to the front of the house, and on looking out of window I perceived that they had got hold of a Peregrine Falcon, and had nearly killed her. I sent out a servant, who brought in the Falcon, a bird of (as I believe) the third year, in bad condition, and dying, not only from injuries received from the Ravens, but also from the dire

disease known to falconers as the "croaks." This falcon showed no signs of being trained, or of having ever been in captivity.

26th. I received from Mr. H. Tresham, of Peterborough, a young Puffin that was picked up in Thorney Fen a few days ago. I am glad to say that we have kept this bird alive and well here for nearly five months.

DECEMBER.

9th. The gamekeepers report many thousands of Wood Pigeons about our old oak-woods, in which there is an extraordinary crop of acorns. The Wadenhoe gamekeeper, to give some idea of the numbers of these birds, sent me word that they are as "five to one in the French war year," 1870-71, when we had more Pigeons than in any other season in my recollection.

11. Mr. W. Tomalin was good enough to send me a Mealy Redpoll alive, with the information that it was recently caught by a Northampton birdcatcher near Roade. The falconer to-day reported that on 9th inst. two Swans passed over Lilford in a southerly direction, loudly trumpeting as they flew.

14th. Eighteen Geese reported as passing over Thorpe Waterville.

18th. "More Wood Pigeons than ever in the oak-woods," reported by many persons.

21st. Mr. Walter Stopford shot and sent to me, in the flesh, a very beautiful, nearly pure white, variety of Redwing, of which he had been in pursuit for the last two or three days, in the neighbourhood of Tichmarsh. The head of this bird showed an approach to the normal colour; there were a few pale brown feathers among the lesser wing-coverts; all the rest of the plumage a creamy white; beak of the normal colour; legs and feet pale flesh-colour. This bird kept company with a small flock of Fieldfares.

24th. A very great diminution in the number of Wood Pigeons reported by our shooting parties. I am informed by everyone about Lilford that there is a very unusual abundance of Fieldfares in the neighbourhood.

27th. The Aldwinkle gamekeeper tells me that an old blue Falcon has been "drilling" the Wood Pigeons about our woods for some time past.

I append, for what they may be worth, dates of first reports

of arrival of spring migrants for 1893. These dates, with one specified exception, refer to the immediate neighbourhood of Lilford:—March 20th, Chiffchaff; 21st, Wheatear; 27th, Bank Martin. April 1st, Willow Wren; 2nd, Ray's Wagtail; 5th, Redstart and Blackcap; 7th, Nightingale, Swallow, and Tree Pipit; 11th, Whimbrel and Redshank; 14th, Sedge Warbler, Cuckoo, and Wryneck; 16th, Whitethroat, Lesser Whitethroat; 17th, Grasshopper Warbler (Thornhaugh, near Wansford); 18th, Corn Crake; 19th, Wood Warbler and Whinchat; 22nd, Reed Warbler and Turtle Dove; 26th, Garden Warbler; 27th, Red-backed Shrike and Spotted Flycatcher. May 1st, House Martin; 13th, Swift and Common Sandpiper; 28th, Hobby.

NOTES AND QUERIES.

MAMMALIA.

The Badger: its period of Gestation.—The following account of the breeding of Badgers may throw some light on the subject of their period of gestation. In the beginning of April, 1880, we dug out three Badger cubs in Kent. They were then about the size of Wild Rabbits. They became very tame, and would follow us about anywhere, even along the roads, but always resented being picked up, although they would climb into our laps. They were fed on rabbits, birds, biscuit, and ate enormous quantities of Wasp-grubs, eating the combs as well as the grubs. They used also to procure numerous beetles and worms for themselves. Towards the end of August of the same year we moved them to my present home in Hampshire. By that time they had greatly grown and were fine Badgers, the three together weighing 39 lbs.; one of them being much smaller than the other two. They were temporarily placed in a pigsty, but soon made their escape, and were lost for some days, when we discovered that they had taken up their abode in a wood-lodge that was filled with wood and faggots. They used to come out every evening to feed with the dogs, and would run at them and try to knock them over by putting their noses under them and lifting them up, but never tried to bite. At night they wandered far away, but would come when I called them from a long distance and put their paws on my knees; and on one occasion one of them, without any provocation, quietly gave my knee a good nip. During the end of September and the whole of October they were exceedingly noisy; one of them was continually chattering, and another uttering a loud drawling cry, which I have heard before in the autumn

from wild Badgers. About this time the small one disappeared, and the other two lived all the winter in the wood-lodge, having, as we could see, carried in quantities of grass and bracken, the latter from some heaps of small potatoes over which it had been thrown to keep out frost. Numbers of potatoes were also carried away, but were never eaten. They did not regularly hybernate, but sometimes did not show for several days. After a fall of snow I tracked one of them a very long way to a sand-pit, where there was a fox-earth. About the middle of March, 1881, we distinctly heard young ones whining and chattering in the recesses of the wood-lodge, and did not see either of the old ones for a fortnight, when the female came out. She was very hungry, and wonderfully quick and active. She had a smooth appearance about her head, and her hair looked thin, reminding me in fact very much of a Ferret or Polecat under similar circumstances. She came out every evening, and we could hear the young ones continually. All this time we had lost sight of the male, and I had to leave home for a fortnight, so for all that period I do not know what happened. On my return home there was no sign of young ones; all was quiet, and only the old female was seen. She used to come in the evening from the other direction, and I traced her to the sand-pit about three quarters of a mile off. She was always in a great hurry, but as tame as ever, and she used to surprise me with the way she used to spring up a very steep bank. She would go the round of all the dog-kennels for any scraps they might have laid up, each dog always turning out for her. Now comes the sad part of the story. My gardener told me that while I was away he had heard a noise in the wood-lodge like a chain rattling, so I decided to get all the wood out. This was done, and we came on two large nests, right at the end of the lodge, and by one of them lay the male Badger dead, entangled in the wood by the chain of a gin that the poor fellow had on his foot. He smelt dreadfully, and this was of course the reason of the female moving her young away. Now as these Badgers had young by the time they were twelve months old, it cannot be said that twelve months is the usual period of gestation. The noisy period in October was probably the time when the female was in season, and if so, it would seem that four to five months in this case was the period of gestation. Is it not possible, that when a female Badger is caught when in litter, the development of the foetus may be suspended until she gets over the shock of her capture? To return to my story. The old female continued to visit us during the summer, but towards autumn her visits became fewer and fewer and at last ceased. All that now remains is a thriving colony of Badgers in the sand-pit to which she originally moved her young.—E. G. MEADE-WALDO (Rope Hill, Lymington).

Destruction of Martens in Ireland.—In his article on the Marten in Ireland (p. 141) Mr. Barrett Hamilton gives "an extract from a law"

which he supposes to be "still in force in Ireland," and which provides a reward of 5s. to any person or persons who shall take, kill, or destroy any Otter or Marten. He refers evidently to Section 14 of 27 Geo. III. cap. 35, but he, and doubtless many others, will be glad to learn that this enactment is no longer in force, having been repealed by 3 & 4 Will. IV., cap. 78, sec. 64.—J. E. HARTING.

Bank Vole in Worcestershire and Shropshire.—During the months of February and March I trapped the Bank Vole freely in the Wyre Forest, which covers a considerable area of both these counties. It has been recorded once before in Shropshire (Zool. 1888, p. 184), at Eyton, some thirty miles distant, but, to the best of my knowledge, not in Worcestershire. If more naturalists would pay attention to the distribution of the mammals within their districts, this species would probably prove to be far from rare, if occasionally somewhat local.—J. S. ELLIOTT (30, Dixon's Green, Dudley).

Water Vole at a distance from Water.—On March 16th a man here showed me a Water Vole which he had just taken out of a mole-trap. The trap was set in a field situate about half-a-mile from the nearest water where Water Voles are found.—E. W. H. BLAGG (Cheadle, Staffordshire).

[The habit of the Water Vole to wander occasionally to some distance from water was remarked long ago by Gilbert White. In his 26th letter to Pennant he writes:—"As a neighbour was lately ploughing in a dry chalky field, far removed from any water, he turned out a water rat that was curiously laid up in an *hybernaculum* artificially formed of grass and leaves. At one end of the burrow lay above a gallon of potatoes regularly stowed, on which it was to have supported itself during the winter. But the difficulty with me is how this *Amphibius mus* came to fix its winter station at such a distance from the water. Was it determined in its choice of that place by the mere accident of finding the potatoes which were planted there; or is it the constant practice of the aquatic rat to forsake the neighbourhood of the water in the colder months?" In a previous letter (the 10th to Pennant), White suspects there may be two species of Water Rat, and gives reasons for this opinion.—ED.]

Stoats in Ermine Dress.—With reference to my note upon this subject (p. 148) it may be worth while drawing attention to the fact that Pennant ('British Zoology,' 1776, vol. i., plate 7) figures a Stoat in intermediate pelage. In this specimen the white of the belly extends part of the way up the sides; the basal half of the tail has become white, as has also the hind leg and most of the fore leg. It is a very fair representation of the manner in which the change takes place. Pennant writes (p. 91), "With us [in Flintshire] the Stoat is observed to change its colour from brown to white in November, and to begin to resume the brown the beginning of March."—O. V. APLIN (Bloxham, Oxon).

BIRDS.

Early arrival of the Cuckoo in 1894.—In spite of the rather dogmatic assertion of the Editor (p. 189) that "in no instance, so far as he is aware, has the Cuckoo been heard or seen (by any competent observer) before the 6th of April," I must beg to record my humble testimony on the point, leaving others to judge, as may seem good to them, of my competency. On April 1st of this year, 1894, two of my sons reported to me that they had both heard and seen a Cuckoo; as both of them are, in my judgment, competent observers, I did not doubt their accuracy, and the next day, April 2nd, I myself had the pleasure of hearing one repeatedly. This date is no doubt, in my own experience of, now going on I am sorry to say for sixty years, exceptionally early,—the earliest in fact that I have ever recorded. It may interest some naturalists if I add here the dates of the first hearing or seeing, or both, of the Cuckoo which I have recorded since 1866. In some years I made no record, being perhaps away from home, or otherwise unable to believe that the first time I heard or saw a Cuckoo was any real or approximate date of its first arrival here:—1867, April 18th; 1868, 14th; 1869, 9th; 1870, 13th; 1871, 12th; 1872, 13th; 1873, 13th; 1887, 14th; 1891, 19th; 1894, 1st. The latest date at which the Cuckoo is heard is also, it seems to me, a point of interest. On this I have the following notes:—"July 3rd, 1891. Heard three Cuckoos this evening; one quite hoarse. July 5th, 1891. Heard one again to-day."—O. P. CAMBRIDGE (Bloxworth, Dorset).

[The Editor's statement to which our valued correspondent takes exception was actually published nearly twenty years ago, *i. e.*, in 1875, in 'Our Summer Migrants.' We do not know why it should now be characterized as "dogmatic," seeing that it is confirmed by the observations of Mr. Borrer, extending over more than thirty years, as made known by him in 1891 in his 'Birds of Sussex,' and by the deductions of Mr. Southwell (p. 190) from records kept for the much longer period of 106 years. Moreover, even now, no date earlier than April 9th is adduced by Mr. Cambridge (except that noted for the present year), while the average for the ten years' observations given by him is from the 12th to the 13th of April.—ED.]

Cuckoo seen in March.—Like other correspondents (Zool. 1894, p. 189), I am no believer in the March Cuckoo. I have regularly taken notes of its first appearance, and in thirty-one years, between 1863 and 1894, the earliest date that I have heard it in North Lincolnshire was on April 14th (1869), the latest, May 1st (in 1873). The earliest date I have ever heard it in England was April 8th, 1894, at Tunbridge Wells.—JOHN CORDEAUX (Great Cotes House, R.S.O., Lincoln).

Early laying of the Cuckoo.—It may be interesting to note the early laying of the Cuckoo this year in Somersetshire. My son took an

egg on April 28th, in the nest of a Robin. — H. S. B. GOLDSMITH (Bridge-water).

Variation of Plumage in Cuckoo.—*Apropos* of the question of March Cuckoos, Mr. Southwell, in the last number of 'The Zoologist,' states that the "few particulars given have always appeared to indicate the plumage of the young bird, an obvious absurdity." Without any disrespect for so high an authority, I should like to mention some facts that have fallen under my own observation; once (some three or four years ago) in Epping Forest; and again, only last week, on a certain moor some twelve miles from Whitby. Cuckoos abound there this year. On the morning of May 14th two Cuckoos flew close past me. Noticing something curious about one of them, I marked them down in a bare patch in the ling, and crawling within about fifty yards of them, I had just time to get my glasses focussed upon them, when they were disturbed by one of the moorland sheep, and disappeared down a gully. For the short space that I had them under observation, I was able to see distinctly that one was in the normal plumage, and the other, which had its back towards me, was in all respects *marked precisely like a young bird of the year*. I was unable to note the colour of the flanks and under parts, as also the colour of the irides. On returning home, and looking up the literature on the subject, I find in Yarrell (ed. 4, vol ii., p. 407) notice of "certain examples, presumably young, which put on a plumage very different from that generally assumed and which have been described under the name of *Cuculus rufus*." Whether the bird seen by me was one of these, or a variety, I am unable to say; I merely mention facts as I observed them; but taken in connection with Mr. Southwell's remarks, these birds certainly bear a close resemblance to a female Kestrel, and the thought occurred to me, that when putting down all early Cuckoos as Kestrels, the possible occurrence of this species or variety, whichever it is, should be taken into consideration.—OXLEY GRABHAM, M.A. (Croxtan Villa, Scarborough).

[We understand Mr. Southwell's remarks to mean that in certain cases, where the early appearance of *supposed* Cuckoos has been reported, the description of the plumage given by the observer has pointed either to the Kestrel, or to a Cuckoo in the immature reddish brown barred plumage, which *so early in the spring* (he considers) would be an impossibility, or, as he puts it, "an obvious absurdity." This raises the question whether the Cuckoo ever retains the immature plumage until its second year. We have no doubt that it occasionally does so—it misses a moult, just as trained falcons are occasionally observed to do—and the following remarks in 'The Birds of Middlesex' (1866, p. 120) are to the point:—"Occasionally an adult Cuckoo is obtained in the reddish brown plumage peculiar to the young bird, but this happens very rarely. I know of two instances in which old birds have been shot in this state of plumage, one

having been previously observed for three summers, and the other for five or six; they were both females, and I believe an adult male of this colour has never been obtained. The adult brown Cuckoo is thought by some to be a distinct species, and has been figured and described under the name of *Cuculus hepaticus*." If our memory serves us, for it is a good many years since these remarks were penned, the two examples of adult brown Cuckoos above mentioned were shot by that excellent field-naturalist, the late Frederick Bond, and were long preserved in his collection.—ED.]

Black Redstart in Kent.—On March 26th I saw a Black Redstart, *R. tithys*, near the village of Wye. It flew up from the side of the road, and perched on the roof of a cottage close by. It was apparently a young bird in the uniform slaty-grey plumage.—J. H. CATON HAIGH (Aber-Iâ, Penrhyndeudraeth, Merionethshire, North Wales).

Dark Variety of the Barn Owl.—A very dark buff-coloured variety of the Barn Owl, *Strix flammea*, was brought to Mr. Pratt, the taxidermist at Brighton, on October 24th, 1893. It was caught in a barn near Brighton, and proved to be a female. It must not be forgotten that there is a fulvous or dark race of our Barn Owl, which I have occasionally seen (*cf.* Zool. 1880, p. 43; 1885, p. 52); but the present example is still darker, especially on the back. Dr. Sharpe, in his study of the Barn Owls, confirms the general opinion that any very fulvous Barn Owl is a migrant from Denmark, where this dark race or species preponderates. The example now referred to closely resembles one which I lately saw in Mrs. Dawson Rowley's collection, which is figured in the 'Ornithological Miscellany,' vol. i. p. 62. This also was caught at Brighton. Writing from memory, there is one in the Norwich Museum darker and more richly coloured than either of these. This was taken on our east coast in December, 1864, and is alluded to in Stevenson's 'Birds of Norfolk.' Whether these dark owls can ever be maintained as a species is doubtful, and that certainly was not my father's opinion, nor is it Dr. Sharpe's, in spite of the immense difference between the extremes of the two phases in respect of colour.—J. H. GURNEY (Keswick Hall, Norwich).

Short-eared Owl on Northumberland Moors.—With regard to certain remarks which I made in 'The Zoologist' for March (p. 114), in reference to the visitation of Short-eared Owls to certain Northumberland moors, I may state that on the moors referred to they are not now present. The voles having disappeared, the owls have apparently followed suit. The keeper told me he had found several dead owls, and he attributed their death to want of food, in other words, scarcity of mice; apparently a certain area of moor has only a limited number of mice on it, insufficient to maintain an indefinite number of owls.—A. C. CHAPMAN (Moor House, Leamside).

Pheasant nesting in a tree.—A hen Pheasant was recently found sitting upon ten eggs in a Pigeon's nest in a fir-tree at about six feet from the ground, in a covert on my brother's shootings near Barnwell, Northampton.—T. M. WICKHAM.

[It would be interesting to know whether the eggs were duly hatched, and how the young birds were brought down; for, as stated in the 4th ed. of 'Yarrell' (vol. iii. p. 99), lofty situations, such as old nests and squirrel's dreys in trees, are sometimes selected by Pheasants, but the entire brood is rarely brought down in safety.—ED.]

Hooded Crow breeding in Northumberland.—It may interest readers of 'The Zoologist' to know that the Hooded Crow, *Corvus cornix*, has bred for some years in the neighbourhood of Cheviot in Northumberland. The text-books, as a rule, define the border-line between England and Scotland as the normal southern limit of breeding-range of this crow in this portion of our islands, and as it is well known how commonly the Hoodie breeds in southern Scotland, there is nothing extraordinary in its breeding in Northumberland. In 1890 a friend of mine told me he had seen a pair of Hooded Crows at a nest on his shooting near Cheviot, and that at the same time certain young crows were fledged and flying about close at hand. These young birds, which could fly only a short distance without alighting, were close to a certain nest from which young birds had recently flown, and the two old crows in attendance were both Grey-backs. The young crows, on the other hand, my friend told me, were all *quite black* and *not hooded*! Last year (1893) a pair of Hooded Crows again bred close to the same old nest, and the keeper shot one of the old ones off the nest, which contained small young newly hatched. This spring a pair of Hoodies have again nested close to the same old place. It may be added that Carrion Crows are also exceedingly common in this region, although they are being rapidly put down, owing to the havoc these birds work in any district where game is preserved. The place where the Hooded Crows, above mentioned, breed is within a very few miles of the Scottish border, and ordinarily one would attach no importance to it, save for the purposes of county ornithology.—ALFRED C. CHAPMAN (Moor House, Leamside, Co. Durham).

The White Wagtail in Anglesea.—While staying at Rhos Neigr, a small village on the west coast of Anglesea, from April 28th to May 2nd, I noted many Wagtails, some in small flocks and some in pairs, both on the shore and on the banks of Llyn Maelog, which is close to the sea. All of these were *Motacilla alba*, but I could not make out that any were actually breeding. Further inland, on May 2nd, *Motacilla lugubris* was the species I observed.—W. HENRY DOBIE (Chester).

Marsh Harrier nesting near Oxford.—Some years ago I purchased from Mr. Leonard Buttress, of Westbridge, Hendon, an egg of the Marsh

Harrier, *Circus æruginosus*, which he himself took near Oxford in July, 1890. The interest attaching to such a specimen induced me to write Mr. Buttress for further particulars concerning the egg, and in reply he stated that so far as he could remember the nest was situated on the ground, and composed of a quantity of dry vegetation, which he thinks was chiefly reeds. I do not think any other instance of the Marsh Harrier breeding in the above-mentioned district has been recorded for a number of years, or, perhaps, if we except Norfolk, from any other locality in the British Islands, so that the present instance is of more than ordinary interest. The egg itself is now in the British Collection in the Natural History Museum at South Kensington.—H. K. SWANN (Forest Grove, Colville Street, Nottingham).

Notes from Hastings.—On February 4th I picked up an immature Puffin at Pett Level, near Hastings. It had been thrown up by the tide. Also a Gannet in the same way, on February 19th. The weather had been very stormy. On March 21st I had sent me an adult male Brambling, shot near Fairlight while feeding with sparrows near a rick. On April 1st a friend and I saw a Hoopoe in the marshes at Iden, near Rye, Sussex, and I have since heard of one being shot at Lydd, Kent, which is only a few miles away. On April 10th I saw, in the flesh, a male Black Redstart, shot at Ninfield, near Bexhill; it was a bird of last year I should think, as the white bar on the wing was not strongly marked. It is now in my possession. On April 23rd a friend of mine at Ore, near Hastings, took a Hawfinch's nest containing four eggs; and a Goldcrest's nest, with ten eggs, was taken at Battle.—G. W. BRADSHAW (Hastings).

Lesser Redpoll breeding in Somerset.—On the 15th inst. I saw some eggs of the Lesser Redpoll, *Linota rufescens*, Vieillot, taken at Kilve, near Bridgewater. Two eggs were shown to me by the finder, who did not know what they were; there were four eggs in the nest, and I immediately went to get the other two, but found unfortunately that they had been taken and part of the nest pulled out.—H. ST. B. GOLDSMITH (Bridgewater).

[The late Mr. Cecil Smith thought the Lesser Redpoll did not breed in Somersetshire. He regarded it as a winter visitor, appearing in October and staying until about the middle of March.—ED.]

Eggs of the Tree Sparrow.—Several years ago Mr. C. M. Prior called attention to the fact that the Tree Sparrow always lays one egg very much lighter in colour than the rest of the clutch. The other day a Tree Sparrow's nest, with five eggs, which I found in this parish in a hole in an ancient crab-apple tree, recalled the matter to my mind, and the light-coloured egg in the first Tree Sparrow's nest I ever found, just twenty years ago. Four of the eggs found this month were olive-brown, with suffused markings, and darkest on a zone round the biggest part of the egg; these had a resemblance to some dark eggs of the Sky Lark. The fifth egg had the

ground-colour white, with heavy suffused brown markings at the big end, darkest on the zone mentioned before; the rest of the egg was marked with ashy grey spots. My small experience leads me to believe that this remarkable light-coloured egg is always present, having observed it on every occasion when I have found or examined a clutch of Tree Sparrow's eggs. I should be glad to hear the experience of other observers on the point, as (except in the 4th ed. of Yarrell) I cannot find anything bearing upon the question in the books on British birds and the local avifaunas I have by me. The subject is thus referred to in Yarrell;—"When the markings are collected in large masses other splotches of ash-colour may be seen on the very apparent white ground, and in most nests of this species there is one egg of this character, whatever be the pattern of the rest" (vol. ii. p. 84). But I think the passage hardly does full justice to this remarkable feature in the life-history of the Tree Sparrow, which is perhaps unique in the history of our British passerine birds.—O. V. APLIN (Bloxham, Oxon).

REPTILIA.

English Records of *Coronella austriaca*.—Mr. Boulenger's remarks on the variation of the Smooth Snake, *Coronella austriaca* (pp. 10–15), and his allusion to the fact of its having been first noticed as a British species in the pages of this Journal (1859, p. 6731), suggested the utility of collecting all the references to it which have since appeared in 'The Zoologist.' They are accordingly appended, and it may be noted that in the same year in which Dr. J. E. Gray made known the discovery of this rare or at least local snake in this country, he announced the fact also in the *Annals of Nat. Hist.* (1859, p. 317):—

Gray	...	...	...	1859, page 6731.
Bond	...	...	...	1859 " 6787.
Newman	...	...	...	1862 " 8199.
Dr. Opel	...	...	...	1865 " 9505, 9559.
Blackmore	...	...	...	1865 " 9724.
Newman	...	...	...	1869 " 1653.
Cambridge	...	...	...	1872 " 3113.
Kemp Welsh	...	...	...	1872 " 3150.
Corbin	...	...	...	1876 " 4884.
Cambridge	...	...	...	1879 " 462.
Ridley	...	...	...	1882 " 433 (Surrey).
Macpherson	...	...	...	1882 " 434.
Axford	...	...	...	1883 " 84.
Ridley	...	...	...	1883 " 129.

To these references may be added:—'Intellectual Observer,' vol. iii., p. 149, and O. P. Cambridge, *Proceedings Dorset Nat. Hist. Soc.*, 1886, p. 84, pl. vi. Bell's 'British Reptiles' having been published in 1837, before *Coronella austriaca* had been ascertained to exist in the South of England, that author's only reference to this species is an allusion to its supposed occurrence in Dumfriesshire, a supposition which, as Mr. Boulenger has

shown (p. 10), was founded upon a mistake in the identification of the species. In Dr. M. C. Cooke's little volume, 'Our Reptiles,' *C. austriaca* is described as British, and a coloured figure is given of the species from a specimen obtained in Hampshire.—J. E. HARTING.

FISHES.

Blind Gudgeon.—In a small pond near Scarborough are to be found great numbers of Gudgeon, *Gobius fluviatilis*; nice, well-fed little fish, perhaps somewhat under-sized, but almost all of them *blind*. This peculiarity has puzzled me for a long time, as it is not odd fish which are thus afflicted, but about ten out of every dozen examined. I have also been struck with a peculiarity in the pond—that even in the hottest and driest period of last year the water did not dry up or diminish to any perceptible degree. On causing enquiry to be made, I am informed that a subterranean lake exists, having an outlet into the pond, which thus always maintains the same level, independent of climatic changes. It has been suggested to me that possibly the Gudgeon inhabiting the pond may have been bred in the subterranean lake, which would probably in the course of generations lead to the loss of sight, the fish then finding their way upwards into the pond. I should be glad to know if this is a probable explanation, and if so, what food-supply would the fish find underground? I would add that numbers of Newts inhabit the pond, all of which appear to possess full powers of vision.—WILLIAM J. CLARKE (44, Huntriss Row, Scarborough).

Sapphirine Gurnard in the Solway Firth.—The Sapphirine Gurnard, *Trigla hirundo*, Linn., may now be added to the fauna of the Solway Firth, for several specimens have been taken in our waters this spring. The largest that has hitherto come under my notice was a female fish weighing 3½ lbs. It was caught on the Firth on May 19th, and proved to be full of roe. The maturity of the specimen was further evidenced, as we ascertained on dissection, by the form of the air-bladder. I had some reason previously to suppose this species visited our waters, but had not obtained any specimens.—H. A. MACPHERSON (Carlisle).

[We are not surprised to hear of the occurrence of this fish in the Solway Firth, for although not so plentiful as the Red Gurnard, *Trigla cuculus*, it is to be found all round the British coasts, and is widely distributed, being known from Norway to the Mediterranean.—ED.]

The Bergylt, *Sebastes norvegicus*, on the Norfolk Coast.—Mr. A. Patterson sent me a beautiful specimen of this pretty fish, for the Norwich Museum, measuring 5½ inches in length, which had been taken off Yarmouth, in a shrimp-net, on April 29th. I am not aware that this fish has been recognised as occurring on the Norfolk coast previously, and as it is believed to be an inhabitant generally of "rocky bays, where the

distance to the bottom is very great" (Day), it must have been very much out of place in the sandy shallows fished by our shrimpers.—T. SOUTHWELL (Norwich).

Lumpsucker at Penzance.—A specimen of the male or Red Lump-sucker, *Cyclopterus lumpus*, was caught close to the pier-head here, in a trammel, on May 2nd. The late Mr. T. Cornish considered it a rare species on this coast, having seen only one specimen in thirty-four years. The Blue form, or female, is not so uncommon. I saw a specimen, caught in deep water near the Wolf Rock, on February 26th last.—JOHN B. CORNISH (Penzance).

MOLLUSCA.

English Oysters for South Africa.—From a report to hand in the 'Cape Times' it appears that active steps have been taken to introduce English oysters to these shores, a consignment of some 2000 Whitstables having been brought out in the 'Norham Castle.' These have been placed at the mouth of the Swartkops River, Algoa Bay; Mr. Weatherly, the Cape Government fishery expert, has been detailed to watch the progress of the experiment, and so far all goes well. There is, however, still a great deal to be done and learned before satisfactory progress can be made towards the establishment of oyster-culture as a *bonâ fide* industry, able to pay its way. Even though all the rocks and rocky points of the Swartkops River abound in the native South African oyster, it was not at the commencement of the experiment known at what time of the year the native oyster spawned. This, however, has now been decided, for the whole of January the oysters were spawning, and it was quite easy to gain the spawn for microscopic examination. About 800 of the Whitstable oysters arrived alive after their long journey, and these were placed in the water in trays and closely watched. No syndicate is likely to spend money in the development of an industry that will become a valuable property, without ample protection, and this it is now endeavoured to secure. Application has been made for a protection right over the whole of the river-mouth, not, it is carefully explained, that the whole will ever be required, or that it will ever be necessary to use all this, but since the work is at present experimental, it is thought advisable to have as wide a protection as possible, so that the place may be taken where it is found that the work can be best carried on. There is, however, very little doubt that the selected area for the oyster-beds will be a strip of the rocky north bank extending from the mouth for a quarter of a mile up the river. The actual oyster-beds will be no impediment to rowing or sailing anywhere over the surface of the water, and if ever the largest possible success attends the scheme, and the banks should be conserved for three-quarters of a mile, there will be still over ten miles of the better parts of the river fishable.

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

May 3rd, 1894.—Prof. STEWART, President, in the chair.

Mr. J. H. Burkill was admitted, and Dr. Johann Mueller, of Aargau, and Prof. K. Mitsukuri, of the University of Tokyo, were elected Foreign Members of the Society.

Prof. Poulton exhibited the larvæ of certain Lepidoptera to illustrate the results of experiments which he had made in regard to the influence of environment upon their colours. Various coloured twigs and shoots, such as occur in nature, were shown to influence the appearance of many twig-like larvæ in such a manner as to aid their concealment. Commenting upon this exhibition, Mr. A. E. Gibbs detailed the results of feeding the larvæ of *Amphidasys betularia* on birch which has brown shining stems, and on an acacia the petals of which are of a green colour, the larvæ in these cases being brown and green respectively.

Prof. G. B. Howes exhibited and made remarks upon the eggs and young of *Ceratodus fosteri*, received from Prof. Semon, of Jena, who is engaged in working out the development of this fish. Prof. Howes also exhibited a specimen of *Lepidosiren paradoxa*, an extremely rare fish in collections, from the backwaters of the Upper Rio Paraguay, and made remarks upon its anatomy.

Mr. James Saunders, of Luton, with the aid of the oxyhydrogen lantern, exhibited *Plasmodium* in the act of forming sporangia. The species, which had been found on birch, was *Didymium squamulosum*.

On behalf of Dr. H. B. Guppy, the Secretary read a paper on the habits of three species of *Lemna*. In this paper, the author detailed the results of experiments made by him during a period of twenty months, and showed that *Lemna gibba* can pass the winter either in the gibbous form, or with fronds which in appearance come to resemble those of *Lemna minor*. The flowering of *Lemna gibba* was observed in July, when it was found that the gibbous plants were producing thin flat fronds, which were also in flower and floating detached. In both cases the flowers were hermaphrodite, but they had the appearance of being unisexual, on account of the flowers of the gibbous plant protruding the pistil only, while those of the flat fronds evolved only the stamens. After describing the habits of the winter fronds of *Lemna polyrrhiza* and alluding to *Lemna minor*, the paper concluded with a table of temperatures relating to the germinating, budding, and flowering of these plants.

A paper was then read "On the fertilization of certain Malayan Orchids," by Mr. H. N. Ridley.

May 24th, Anniversary Meeting.—Prof. STEWART, President, in the chair.

Messrs. G. B. Rothera and W. Frome Wilkinson were admitted Fellows of the Society.

The Treasurer presented his Annual Report, duly audited, and the Secretary having announced the elections and deaths during the past twelve months, the usual ballot took place for new members of Council, when the following were elected:—Dr. John Anderson, F.R.S., C. B. Clarke, M.A., F.R.S., Prof. J. Reynolds Green, Arthur Lister, and Albert D. Michael.

On a ballot taking place for the election of President and Officers, Mr. Charles Baron Clarke, M.A., F.R.S., was nominated President, and the Treasurer and Secretaries were re-elected.

The Librarian's Report having been read, and certain formal business disposed of, the retiring President delivered his Annual Address, taking for his subject "the Locomotion of Animals, with special reference to the Crustacea." On the motion of Dr. D. H. Scott, seconded by Mr. Howard Saunders, a unanimous vote of thanks was accorded to the President for his Address, with a request that he would allow it to be printed.

The Society's Gold Medal was then formally awarded to Prof. Ernst Haeckel, of Jena, for his researches in Invertebrate Zoology, especially in relation to the *Medusa* and *Radiolaria*. It was received on his behalf by Mr. W. Percy Sladen, who read a letter of acknowledgment and thanks, prefaced by an expression of the writer's regret at his inability to come to England to receive the medal in person.

ZOOLOGICAL SOCIETY OF LONDON.

May 1st, 1894.—Dr. A. GUNTHER, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of April, and called special attention to a valuable collection of Mammals presented to the Society by Dr. J. Anderson, F.R.S., being part of the proceeds of his recent expedition to Egypt.

Dr. Günther exhibited and made remarks on specimens of a South-African Hornbill, *Buceros melanoleucus*, and of a portion of the tree in which the nest was placed, and spoke of its mode of nesting and of its extraordinary habits during that season. The specimens had been transmitted to the British Museum by Dr. Schönland, of Grahamstown.

Dr. H. E. Sauvage exhibited a vertebra of the earliest known Snake from the gault of Portugal.

Mr. W. Bateson exhibited a large number of specimens of *Gonioctena variabilis*, a phytophagous Beetle, from Spain, in illustration of discontinuous variation in colour.

Prof. F. Jeffrey Bell gave an account of the Echinoderms collected during the voyage of H.M.S. 'Penguin' and by H.M.S. 'Egeria,' when surveying Macclesfield Bank. The collection, which had been made by Mr. P. W. Bassett Smith, Surgeon, R.N., with the co-operation of Mr. J. J. Walker, Chief Engineer, was very extensive, and contained examples of many new species, some of which were of a very remarkable character.

Mr. Ernest W. Holt, Naturalist to the Marine Biological Association, gave an account of some of the results of his recent studies in teleostean morphology made at the Marine Laboratory at Cleethorpe. Mr. Holt spoke first of some specimens of the Ling, *Molva abyssorum*, Nilsson. The regular occurrence of this fish off the Faroë Islands, and its occasional capture on the coast of Iceland, were now recorded for the first time, the species having been previously observed only on the Scandinavian coasts. The specimens, six in number, all of considerable size, were described in detail, and the species was carefully compared with the allied form, *M. vulgaris* (the Common Ling). Mr. Holt next proceeded to describe the "*recessus orbitalis*," an accessory visual organ of the Pleuronected Fishes. The organ in question was stated to be a highly elastic saccular process of the membranous wall of the orbital cavity. It had been found to occur in all the Flat-fishes examined, viz. the Halibut, Long Rough Dab, Brill, Plaice, Flounder, Lemon-Sole, Dab, and Common Sole, and was believed to occur in all Flat-fishes with well-developed eyes. Finally, Mr. Holt spoke of an adult specimen of the Common Sole with symmetrical eyes, and discussed the bearing of this specimen on ambicoloration. The specimen in question, about 15 inches long, was perfectly normal in external configuration, except that the left eye had retained its position on the left side of the head, and was nearly opposite to the right eye. Antero-ventrally it had been somewhat overgrown by the skin. The coloration was normal, the right side being brown, and the left side white.

A communication was read from Mr. St. George Littledale, containing field-notes on the Wild Camel of Lob Nor, as observed during his recent journey across Central Asia.

Mr. Oldfield Thomas gave an account of a collection of mammals from Oman, S.E. Arabia, which had been transmitted to the British Museum by Dr. A. S. G. Jayakar, among which were examples of a new Hare, *Lepus omanensis*, and of a new Goat of the genus *Hemitragus*, proposed to be called *jayakari*, after its discoverer. Altogether seventeen species were represented in this collection, from a locality of which very little was previously known.—P. L. SCLATER, *Secretary*.

THE BRITISH ORNITHOLOGISTS' UNION.

The Annual General Meeting of the British Ornithologists' Union was held at the Zoological Society's Rooms, in Hanover Square, on Wednesday, the 9th inst. In the absence of the President (Lord Lilford), the chair was taken by Mr. P. L. Sclater, F.R.S. The report of the Committee gave a flourishing account of the finances, a good balance having been carried over, after payment of the expenditure on 'The Ibis' for 1893. One vacancy in the Union had been occasioned by death, and four by resignation since the last Anniversary, and the Union was stated to consist at present of 240 Ordinary Members, besides Honorary and Foreign Members.

Seventeen new candidates for election having been balloted for, Lord Lilford was re-elected President and Mr. F. D. Godman, Secretary for the ensuing year, and Lt.-Col. L. H. Irby and Mr. W. T. Blanford were placed on the Committee in lieu of two retiring members. It was agreed that a new (seventh) series of 'The Ibis' should be commenced in 1895, with the 37th volume, and that Mr. P. L. Sclater and Mr. Howard Saunders should be appointed as joint Editors of it. It was further resolved, on the motion of Mr. Harting, that the Committee should take the necessary steps towards the preparation of another volume of the 'General Index' from the commencement of the Fourth Series to the end of the Sixth Series, and consider at the same time the feasibility of improving it by including the names of authors of papers, and such places as are mentioned in the titles of papers.

ENTOMOLOGICAL SOCIETY OF LONDON.

May 2nd, 1894.—H. J. ELWES, Esq., F.L.S., President, in the chair.

Mr. S. Stevens exhibited a specimen of *Argynnis aglaia* var. *charlotta*, taken by the late Rev. James Watson in the New Forest in 1870.

Mr. J. A. Clark exhibited a curious variety of *Chelonia caja*, having an extraordinary wedge-shaped marking extending from the outer margin to the base of the left hind wing, and also, on the same wing, a small spot. It was brown and white in colour, and had the appearance of having been taken from the fore wing and inserted in the hind wing. The specimen was said to have been taken at Abbots Wood, in July, 1892.

Prof. E. B. Poulton exhibited living specimens of the larvæ of *Gastropacha quercifolia*, surrounded respectively during the early stages of growth by black twigs and lichen-coloured twigs, the food being the same in both cases. All the larvæ were shown upon a white paper back-ground, but examples of the surrounding twigs which produced the change of colour were shown beside each batch. Mr. Merrifield made some remarks on the subject.

Mr. E. Meyrick communicated a paper "On *Pyralidina* from the Malay Archipelago."

Mr. C. J. Gahan read a paper entitled "A Supplemental List of the Longicorn Coleoptera obtained by Mr. J. J. Walker, R.N., during the voyage of H.M.S. 'Penguin.'"—H. Goss & W. W. FOWLER, *Hon. Secs.*

NOTICES OF NEW BOOKS.

Life and Rock: a Collection of Zoological and Geological Essays.

By R. LYDEKKER. 8vo, pp. 220. With illustrations.
London: Witherby & Co. 1894.

OF the twenty-one chapters contained in this volume the majority are devoted to zoology, and especially to its palæontological branch, while a smaller number relate to geology proper. While some of the former treat of the natural history of particular groups or species of animals, others are more especially devoted to a consideration of some of the many interesting problems connected with evolution, development, and mutual relationships of animals, which at the present day are attracting so much attention.

To enable the reader to form some idea of the nature and variety of the contents, we give the titles of the chapters, which are as follow:—"Elephants, recent and extinct; Tusks and their Uses; Moles; Spiny Animals; Parallelism in Development; Toothed Whales and their Ancestry; Whalebone and Whalebone Whales; Ruminants and their Distribution; The Giraffe; Lemurs; Armadillos and Aard-varks; the Oldest Mammals; Crocodiles and Alligators; The Oldest Fishes and their Fins; Living Fossils; The Extinction of Animals; Protective Resemblance in Animals; Sea Urchins; Nummulites and Mountains; A Lump of Chalk and its Lessons; and A Flake of Flint and its History."

On all of these subjects Mr. Lydekker has information to impart; not much that is new perhaps, but yet a great deal in a few words which have the merit of conveying to the reader just what he wants to know, and what he has possibly looked for elsewhere in vain. Thus, in a couple of pages, we get a clear

exposition of the chief characteristics which distinguish Crocodiles from Alligators; and in the chapter on "Spiny Animals," the author explains in what respect the spines of Porcupines differ from those of Hedgehogs. Thus in the Hedgehogs

"the spines, in place of terminating in sharp points, by which they are but loosely attached to the skin, like those of the Porcupine, the spines of the Hedgehog terminate interiorly in small knobs, which are placed beneath the skin, and may thus be compared to pins stuck through a piece of soft leather. Beneath the skin lies a layer of muscle known as the *panniculus carnosus*; and it is by the action of this muscle on their heads that the spines are raised from a recumbent to a vertical position when the creature rolls itself up into a ball—an action of which all Porcupines are quite incapable. In the Porcupine the spines are most developed on the middle line of the head and back, the hinder part of the body, and on the short tail. But while those on the body are solid throughout and pointed at each end, the spines at the extremity of the short tail are in the form of hollow quills inserted by narrow stalks. It is these hollow quills that make the loud rattling sound heard when a Porcupine is walking. . . . Although the owner is unable voluntarily to eject the latter, their pointed bases render them easily detached, and Leopards, which habitually feed on Porcupines, are found to be actually bristling with their quills."

We may supplement this remark with an observation of Dr. Hart Merriam, to the effect that the American Panther, or Puma (which usually preys upon Deer), is either particularly fond of Porcupine, or else is frequently forced by hunger to make a distasteful meal. It is certain, he says, that "it destroys a great many Porcupines, and it often happens that a Panther is killed whose mouth and lips, and sometimes other parts also, fairly bristle with the quills of this formidable rodent" (Trans. Linn. Soc., New York, 1882-84).

In his chapter "On the Extinction of Animals," Mr. Lydekker would have done well to have referred to an excellent paper on this subject by Mr. Frederic A. Lucas, published, with several good illustrations, in the 'Report of the U. S. National Museum,' 1888-89 (pp. 609-649). In this essay an account is given of several species not mentioned by Mr. Lydekker, such as the West Indian Seal, *Monachus tropicalis*; the Californian Sea Elephant, *Microrhinus angustirostris*; the Pacific Walrus, *O. obesus*; the European Bison, *B. bonassus*; the Californian Vulture; and the Tile-fish, *Lopholatilus chamaeleonticeps*. Some

of these, of course, would be more correctly described as approaching extinction, rather than extinct, though it would be unwise on that account to abstain from giving such reliable information as can be obtained concerning them. Mr. Lydekker's chapter, however, on this subject, is one of the most disappointing in the book, and conveys the impression of having been too hastily written. The facts which it contains are jumbled and confused. The author passes from African Elephant and Rhinoceros to the Tuatera Lizard and Moas of New Zealand, then to the extinct birds of Mauritius and Rodriguez. From these we are diverted to a consideration of the Northern Sea Cow, *Rhytina*; back again to the Mascarene Islands for Giant Tortoises and the Pied Starling of Réunion, *Fregilupus*; once more to New Zealand for a paragraph or two on *Nestor productus* and *Notornis mantelli*. Then comes a single page upon the Great Auk, followed by some remarks on the African Blaubok and Quagga, from a consideration of which we are carried back again to Bering Island, where Dr. Stejneger found the remains of Pallas's Cormorant in 1882, and thence to the Sandwich Islands, where the fashion of making feather cloaks for savage chiefs from a handsome little black-and-yellow bird, *Drepanornis pacifica*, has resulted in its extermination. Two lines in allusion to the "Diablotin, a remarkable burrowing Petrel of the Antilles," and eighteen lines upon the Pied Duck of Labrador, and the chapter concludes with a paragraph upon a South American rodent (*Dinomys*). This jumbling up of mammals, birds, and reptiles, without any logical arrangement, is extremely embarrassing to the reader, who must also be disappointed at finding so little said about many of the species named. In any new edition this chapter should be re-written.

We cannot say much for the text-cuts. Most of them appear to have been borrowed from other books, and having been printed from electros, have (as often happens) suffered in consequence. This is to be regretted, for the letterpress deserved to be better illustrated.

Lost British Birds. By W. H. HUDSON, Author of 'The Naturalist in La Plata' and 'Idle Days in Patagonia.' Published by the Secretary to the "Society for the Protection of Birds" (Mrs. Lemon, Redhill, Surrey). 8vo, pp. 32. With 15 illustrations. 1894.

ALTHOUGH we are not sanguine enough to believe that the above-named Society will ever succeed in what appears to be its principal object, namely, to persuade ladies to abandon the fashion of decorating themselves with birds' feathers, the series of pamphlets which are published under its auspices will, we doubt not, be productive of good, inasmuch as they tend to remove certain erroneous popular notions in regard to birds, and give publicity to facts which are worthy of consideration. Amongst these pamphlets we have particularly noted two by Professor Newton, on the 'Devastation of Bird-homes in Florida,' and on 'The Zoological aspect of the Game-laws.' Mr. Hudson, who has already explained a popular misnomer in his tract on 'Osprey, or Egrets and Aigrettes,' has just contributed to the series an essay of thirty-two pages on what he terms 'Lost British Birds,' that is, birds which from various adverse circumstances have ceased to reside and breed in the British Islands. The species dealt with are the Crane, Spoonbill, Capercaillie (though this bird has been re-introduced), Avocet, Bustard, Black-tailed Godwit, Great Auk, Savi's Warbler, Black Tern, Bittern, Marsh Harrier, Hen Harrier, and Ruff and Reeve. The information given about each of these species as formerly resident and breeding here is by no means exhaustive, but so far as it goes is tolerably accurate. It is to be regretted, we think, that while he was about it, Mr. Hudson did not make more of his subject, which is an extremely interesting one, but possibly he may have considered that any further amplification would have carried him beyond the scope of the series to which this pamphlet is contributed. The figures with which it is illustrated, although recognizable representations of the species named, are somewhat coarse in their execution, and by no means comparable, for example, with those in his delightful volume on *La Plata*, which has been already reviewed in these pages.

The Birds of the County Cork. By R. J. USSHER. Contributed to the Journal of the Cork Historical and Archæological Society. Thin 4to, pp. 23. Cork: Guy & Co. 1894.

MORE than a dozen years have elapsed since we endeavoured, in an article published in this Journal,* to arouse the apathy of Irish naturalists in regard to the preparation of a new Irish Fauna. We pointed out the great need of either a new edition of Thompson's work, or a fresh undertaking, and urged the formation of a Committee for the purpose of dividing the labour and expediting publication. It was perhaps not too much to expect that such a work might be completed in something less than ten years; but twelve years have now elapsed, and the matter is still apparently *in statu quo*! We are quite at a loss to understand this want of energy on the part of our *confrères* in Ireland. It is true that the formation of a Committee has been long ago announced, but we have not heard of any meetings of this Committee, nor of any instalment, published under its auspices, of the great work for which we are so impatient. That individual members of the Committee are not idle in regard to Irish natural history we have good reason to know, for they not only continue to favour us from time to time with excellent articles for 'The Zoologist' (for which we are duly grateful), but they have also started a new journal, 'The Irish Naturalist,' which we trust will awaken a wider interest in the subject throughout Ireland, and be the means of eliciting much useful information from various parts of the country. Still we are not happy. We want a new text-book on the Fauna of Ireland, and would once more urge upon Irish naturalists the extreme desirability of providing it.

Mr. R. J. Ussher has recently shown what can be done in a single county by a contribution on the Birds of the County Cork, and a goodly list he has been able to make out. It is perhaps to be regretted that he has not prefaced his remarks with some sort of introduction indicating the physical features of the county, and summarising the results of the observations which follow. But his notes on the various species which have been ascertained to occur will be read with interest by ornithologists, as well as the appended remarks by Mr. Robert Warren.

* "The Annals of Irish Zoology," Zool. 1881, pp. 433—445; 473—483.

